

What is claimed is:

1. A method for specifying a device independent trap color in a color space for a color

boundary, comprising:

obtaining a first color value (C1), representing a first color in a color space associated with the color boundary, having a first darkness and first chromaticity;

obtaining a second color value (C2), representing a second color in the color space associated with the color boundary, having a second darkness and second chromaticity; and

generating a trap color value, representing a color in the color space, having substantially a same darkness as a lighter of the first and second color value, and a chromaticity that is a function of the first and second chromaticities of the first and second color values.

2. The method of claim 1 wherein the first color value and the second color value have a first and second luminosity value, respectively, and wherein a luminosity value of the trap color is selected from one of the first and second luminosity values corresponding to a darker of the first and second color value.

3. The method of claim 1 wherein the first and second color values are associated with a device dependent state, the method further comprising
prior to generating a trap color value, transforming the first and the second color values from the device dependent space to a device independent space.

1 4. The method of claim 3 further comprising after generating the trap color value,
2 transforming the trap color value from a device independent space to a device dependent space
3 associated with an output device to be used to render the color boundary.

1 5. The method of claim 3 wherein the device independent color space is the CIELAB
2 color space.

1 6. The method of claim 1 wherein the first color value is represented by a first
2 luminosity (L1) and a first pair of chromaticity (A1 and B1) color values, the second color value is
3 represented by a second luminosity (L2) and a second pair of chromaticity (A2 and B2) color values,
4 and the trap color is represented by a third luminosity (L3) and a third pair of chromaticity (A3 and
5 B3) color values and is generated in accordance with:

6
7
$$L3 = \text{DARK}(L1, L2),$$

8
$$A3 = (A2+A1)/2, \text{ and } B3 = (B2+B1)/2,$$

9
10 where DARK(L1, L2) returns that value corresponding to a darker of the first and second luminosity
11 color values L1 and L2.

1 7. A method of specifying output device independent trapping color values in a
2 graphical processing system, comprising:
3 obtaining a computer readable file including color objects;

4 identifying color boundaries between color objects, each color boundary having an edge and
5 a first color value representing a first color in a color space, and a second color value representing a
6 second color in the color space;
7 converting the first and second color values from the color space to a device independent
8 color space;
9 identifying trap regions;
10 generating a trap color value, representing a color in the device independent color space, for
11 each identified trap region; and
12 storing the generated trap color value in an output file.

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2 computing a mean difference between the respective first and second color values.

1 12. The method of claim 9 where the step of generating a trap color value includes
2 selecting the trap color value colorimetrically.

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1 13. The method of claim 12 where each color value has a luminosity and a chromaticity
2 value, and where the trap color luminosity value corresponds to the luminosity value associated with
3 the darker of the first and second color values and where the trap color chromaticity value is a
4 function of the first and second chromaticity values.

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14. The method of claim 12 where the trap color value is selected by mapping a lighter of the
respective first and second color values to a chromaticity but at darkness of a darker of the respective
first and second color values.

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15. The method of claim 14 where the chromaticity is an average chromaticity.

1 16. The method of claim 14 where the chromaticity is a function of chromaticities
2 associated with the first and second color values.

1 17. The method of claim 14 wherein the trap color value is selected by mapping a lighter
2 of the respective first and second color values to a chromaticity at a darkness of a darker of the
3 respective first and second color values and at bisection of a line between them.

1 18. A method for specifying a device independent trap color in a color space for a color
2 boundary, comprising:

3 obtaining a first color value (C1), representing a first color in a color space associated with
4 the color boundary, having a first darkness and first chromaticity;

5 obtaining a second color value (C2), representing a second color in the color space associated
6 with the color boundary, having a second darkness and second chromaticity; and

7 generating a trap color value, representing a color in the color space, including computing a
8 mean difference between the respective first and second color values.

9 19. A program storage device readable by a computer system and having encoded therein
10 a program of instructions that includes instructions to:

11 obtain a first color value (C1), representing a first color in a color space associated with the
12 color boundary, having a first darkness and first chromaticity;

13 obtain a second color value (C2), representing a second color in the color space associated
14 with the color boundary, having a second darkness and second chromaticity; and

15 generate a trap color value, representing a color in the color space, having substantially a
16 same darkness as a lighter of the first and second color value, and a chromaticity that is a function of
17 the first and second chromaticities of the first and second color values.

1 20. A program storage device readable by a computer system and having encoded therein
2 a program of instructions that includes instructions to:

3 obtain a computer readable file including color objects;
4 identify color boundaries between color objects, each color boundary having an edge and a
5 first color value representing a first color in a color space, and a second color value representing a
6 second color in the color space;
7 convert edge color values to a device independent color space;
8 identify trap regions;
9 generate a trap color value, representing a color in the device independent color space, for
10 each identified trap region; and
11 store the generated trap color value in an output file.

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21 A program storage device readable by a computer system and having encoded therein
22 a program of instructions that includes instructions to:
23 obtain a first color value (C1), representing a first color in a color space associated with the
24 color boundary, having a first darkness and first chromaticity;
25 obtain a second color value (C2), representing a second color in the color space associated
26 with the color boundary, having a second darkness and second chromaticity; and
27 generate a trap color value, representing a color in the color space, including compute a mean
28 difference between the respective first and second color values.